

REMARKS

Claims 1 through 21 are in this application and are presented for consideration. By this amendment, Applicant has amended Claims 1-9, 14-17, and 20-21.

Claims 1-2, 4-6, 8, 14-15, 17, 20 and 21 have been rejected under 35 U.S.C. 103(a) as being unpatentable over the Woodland reference (US 6,269,763 B1) in view of the Pratt reference (US 4,848,886).

The Woodland reference provides an autonomous marine vehicle 1.0 comprising a rigid mast assembly 2.0 pivotally attached to a deck 3. The rigid mast assembly 2.0 comprises a retractable and extendible rigid mast 2 pivotally mounted to the deck 3 at its base by a hinged deck coupling mechanism 39. Prior to deployment, the rigid mast 2 is stowed in a recess in the deck 3. The rigid mast 2 is extended or retracted into position by a hydraulic lift cylinder 90. The hinged deck coupling 39 serves as a pivot point for rigid mast 2. The mast assembly 2.0 further comprises mast assembly components including sensors capable of effecting communication to and from the vehicle. Mast assembly components include a megaphone 5, a microphone 8, video cameras 6, peripheral area lights 7, a strobe light 9, an onboard Computer Processing Unit (CPU) 23, radar 10, a GPS navigation card and GPS antenna 11, a satellite transceiver card and satellite antenna 12, and a line of sight RF whip antenna 13. The mast assembly 2.0 also provides an engine air intake port 22 that allows air intake for internal combustion engines when the mast 2 is above the waterline. The mast assembly 2.0 further discloses hollow sections in the rigid mast 2 for conduits for electrical cables, engine combustion air, spray water, and cleaning fluids.

The Pratt reference discloses a submarine periscope system with a mast head 7 with a casing 10 from which protrudes a shaft 16 carrying observation instruments which are protected by a housing 8. A seal arrangement 30 is provided at the interface between the casing 10 and shaft 16 which imposes low friction torque at water pressures within the operational depth range of the periscope system and permits the shaft 16 to rotate for azimuthal movement of the observation instruments. A rotary drive 14 is connected to the shaft 16 for this purpose. The seal arrangement 30 imposes high friction torque at water pressures outside the operational depth range of the periscope system and a water depth pressure valve disables the shaft rotary drive to provide integrity of the seal arrangement outside the operational depth range. The mast head 7 is telescopically extendable by a hoist device 13 and does not penetrate the hull 2 of the submarine 3.

The Woodland disclosure fails to teach or suggest the combination of a snorkel device having a telescopically movable snorkel tube as recited in Claim 1. The Woodland reference discloses a rigid mast 2 that is extended or retracted into position by a hydraulic lift cylinder 90. The mast assembly 2.0 in the Woodland disclosure extends and retracts as one solid mast 2 as opposed to Applicant's invention which provides a movable snorkel tube 4 that surrounds a first stationary tube 3 so that the snorkel tube 4 is telescopically extendible and retractable. In the Woodland disclosure the mast assembly 2.0 is disadvantageously limited by the length of the deck 3, which is usually much greater than the height of the submarine. The Woodland reference fails provide the advantage of placing the sensors at a higher height by adding an extension to the mast assembly. If the sensors in the Woodland reference need to be placed at

a greater height, the entire rigid mast 2 would have to be disadvantageously replaced with a new mast of a greater length. In contrast, the present invention provides the advantage of allowing an extension to be added to the telescopically movable snorkel tube so that the snorkel tube extends the sensors to a greater height. As such, these teachings suggest a different approach and do not suggest the features or advantages of the invention. Accordingly, Applicant respectfully requests that the Examiner favorably consider Claim 1 as now presented in view of the discussion above.

The Woodland reference fails to suggest or teach the limitations as recited in newly amended Claim 20. The Woodland reference fails to provide a stationary tube within a snorkel tube when the tubes are in a non-operating position. The Woodland reference merely discloses a hydraulic cylinder to raise a mast as opposed to the present invention which uses driving means to engage a rail to displace the snorkel tube to the top of the stationary tube during an operating position. The Woodland reference also fails to provide or suggest the combination of an optical device and a short travel drive for extending and retracting the optical device when the snorkel tube is in an operating position. As such, these teachings suggest a different approach and do not suggest the features of the present invention. Accordingly, Applicant respectfully requests that the Examiner favorably consider Claim 20 as now presented.

The Pratt reference fails to teach or suggest a snorkel device. The Pratt reference discloses a periscope system including an optical means arranged in the tower of a submarine, but fails to disclose a snorkel device. Applicant finds neither a teaching nor a suggestion of a snorkel device for a submarine in the Pratt disclosure that includes movable optical observation

means and a communication means. Accordingly, Applicant respectfully requests that the Examiner favorably consider Claims 2, 4-6, 8, 14-15, and 17 as they are based on newly amended Claim 1. Applicant also respectfully requests that the Examiner favorably consider Claim 21 as it is based on newly amended Claim 20.

Claims 3, 7, 9-13, 16, and 18-19 have been rejected under 35 U.S.C. 103(a) as being unpatentable over the Woodland reference in view of the Pratt reference as applied to Claims 1, 2, 4, 5 and 17 and further in view of Wantig reference (DE 3637618 A1).

The Wantig reference fails to teach or suggest the combination of a snorkel device having a telescopically movable snorkel tube. Absent a teaching or suggestion of the important feature of the invention, the combined references clearly do not direct the person of ordinary skill in the art toward the combination as claimed. As the Wantig reference fails to disclose a snorkel including at least two units, it provides no teaching or suggestion to the person of ordinary skill in the art to provide the combination as claimed. Accordingly, Applicant respectfully requests that Examiner favorably consider Claims 3, 7, 9-13, 16, and 18-19 as they are based on newly amended Claim 1.

The prior art as a whole fails to direct the person of ordinary skill in the art toward the feature of the invention. Further, the invention includes cooperating features which provide particular advantages which are neither taught nor suggested by the prior art. Accordingly, Applicant requests that the Examiner reconsider the rejection and allow the claims as now presented.

Further and favorable action on the merits is requested.

Respectfully submitted
for Applicant,



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